



# engineering data

D-109  
LAVALIER DYNAMIC  
MICROPHONE

## DESCRIPTION

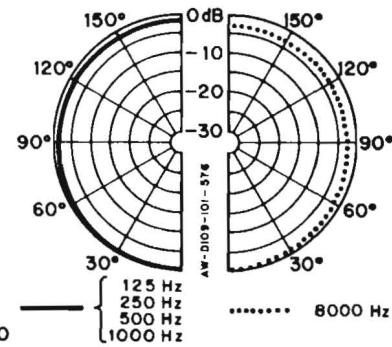
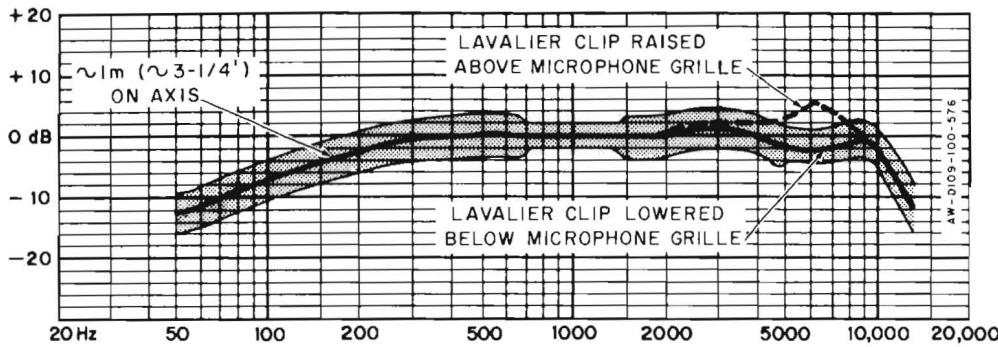
The AKG D-109 is a high-quality omnidirectional microphone that has been electroacoustically designed for optimum performance when worn lavalier-mounted. A compact and lightweight instrument, the D-109 combines accurate speech reproduction with unobtrusive appearance. It is therefore ideal for television, videotape, and film productions requiring an inconspicuous on-camera microphone. The D-109 is also highly recommended for "hands-free" use in churches, schools, lecture halls, and conference rooms.

Unlike a conventional microphone (which exaggerates low frequencies and muffles high frequencies when "adapted" for lavalier use), the D-109 has a specially contoured frequency response that enables it to provide naturally balanced speech reproduction when placed against the user's chest: Response is intentionally rolled off below 300 Hz to reduce tonal coloration caused by chest-cavity resonance. Furthermore, with the ring-shaped lavalier clip raised fully above the level of the microphone grille, response is boosted between 2 kHz and 6 kHz to compensate both for the lack of high-frequency propagation below the chin and for the filtering effect of clothing that may be used to conceal the microphone. (The peak at 6 kHz may be reduced as required simply by lowering the lavalier clip, as shown in the frequency-response curves below.) The D-109's wire-mesh grille and rugged brass case effectively encapsulate the transducer element against metal particles and dust.



A low-impedance balanced-output unit, the D-109 is supplied complete with a 9 m ( $\approx 29\frac{1}{2}$  ft) flexible, 2-conductor shielded cable having stripped and tinned leads at its free end. (The cable is an integral part of the microphone, but can be easily replaced in the field.) Also included are the lavalier clip (with adjustable tie clasp and adjustable/removable nylon neck cord) and a foam-lined vinyl protective case.

## FREQUENCY AND POLAR RESPONSE



## TECHNICAL DATA

Transducer Type: Dynamic  
Directional Characteristic: Omnidirectional  
Frequency Range: 70-12,000 Hz  
Nominal Impedance: 200 ohms  
Recommended Load Impedance:  $\geq 500$  ohms  
Sensitivity at 1 kHz:

Open circuit: 0.11 mV/ $\mu$ b; -79.2 dBV  
Maximum power level: -58 dBm (re: 1 mW/10 dynes/cm<sup>2</sup>)  
EIA G<sub>m</sub>: -151 dBm  
Tolerance: +3, -1 dB

Sound Pressure Level for 1% THD:  
40 Hz: 130 dB  
1000 Hz: 130 dB

Hum Sensitivity: -103 dBm (1 mG field)  
Case Material: Nickel-plated brass  
Dimensions: See Dimensions figure overleaf  
Schematic: See Schematic figure overleaf  
Net Weight: 155 g ( $\approx 5\frac{1}{2}$  oz) w/cable and lavalier clip  
Included Accessories:

9 m ( $\approx 29\frac{1}{2}$  ft) integral 2-cond shielded cable  
Lavalier clip w/adj tie clasp, adj/removable neck cord  
Foam-lined vinyl case

## ARCHITECTS' AND ENGINEERS' SPECIFICATIONS

The microphone shall be a dynamic moving-coil type. Its frequency response shall be specially contoured, as follows, to provide natural speech reproduction when the microphone is worn lavalier-mounted against the user's chest: Response shall be essentially flat at 300 Hz, 1000 Hz, and 9000 Hz; with 10 dB rolloff attenuation at 70 Hz and 12,000 Hz. With the ring-shaped lavalier clip raised fully above the level of the microphone grille, response shall rise from 2000 Hz to a peak of +5 dB at 6000 Hz; with the lavalier clip lowered fully below the level of the microphone grille, response shall fall from 2000 Hz to a dip of -2 dB at 6000 Hz. The microphone shall have an effective omnidirectional pattern maintained over the entire frequency range.

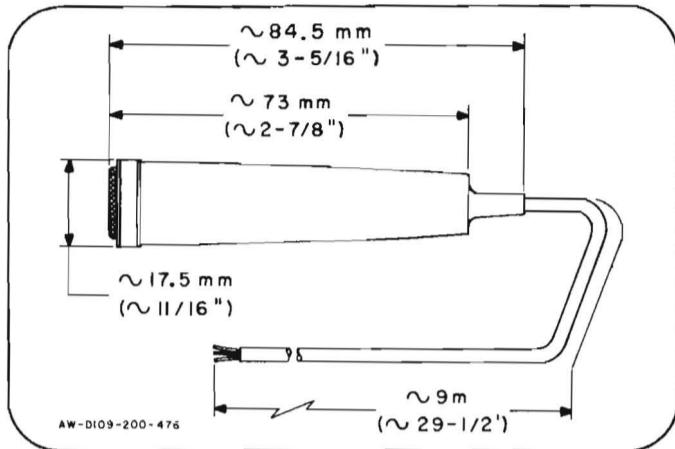
The microphone shall have a nominal impedance of 200 ohms. The output level shall be -58 dBm (re: 1 mW/10 dynes/cm<sup>2</sup>), and the microphone shall be capable of handling a maximum sound-pressure level of 630  $\mu$ bar (130 dB SPL) at 1000 Hz with distortion not exceeding 1%. The EIA sensitivity rating (G<sub>m</sub>) shall be -151 dBm.

An integral wire-mesh grille, commensurate with the acoustical properties of the unit, shall protect the microphone system from metal particles and dust. The transducer diaphragm material shall be non-metallic MAKROFOL.

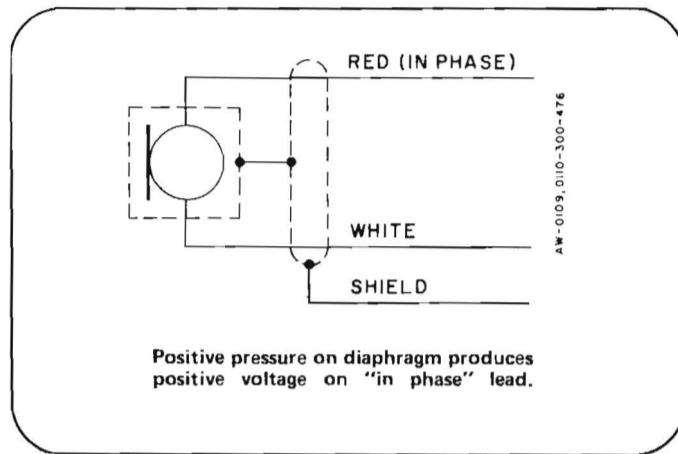
The microphone shall incorporate a 9 m (~29-1/2 ft) flexible, 2-conductor shielded cable having stripped and tinned leads at its free end. The cable shall be field replaceable. A lavalier clip having an adjustable tie clasp and an adjustable/removable nylon neck cord, and a foam-lined vinyl carrying case shall also be provided. The finish of the microphone shall be matte nickel and shall not create specular light reflections.

The microphone shall be 84.5 mm (~3-5/16 in.) long overall including strain relief, by 17.5 mm (~11/16 in.) in diameter, and the net weight shall not exceed 155 g (~5-1/2 oz) including cable and lavalier clip. The microphone herein specified shall be the AKG D-109.

### DIMENSIONS



### SCHEMATIC



### LIMITED WARRANTY

Philips Audio Video Systems Corp. warrants AKG Microphone against defects in material or workmanship for a period of one (1) year from the date of original purchase for use, and agrees to repair or, at our option, replace any defective unit without charge for either parts or labor.

IMPORTANT: This warranty does not cover damage resulting from accident, misuse or abuse, lack of reasonable care, the affixing of any attachment not provided with the product, loss of parts, or connecting the product to any but the specified receptacles. THIS WARRANTY IS VOID UNLESS SERVICE OR REPAIRS ARE PERFORMED BY AN AUTHORIZED SERVICE CENTER.

NOTE: No other warranty written or oral, is authorized by Philips Audio Video Systems Corp.

NO RESPONSIBILITY IS ASSUMED FOR ANY SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES. HOWEVER, THE LIMITATION OF ANY RIGHT OR REMEDY SHALL NOT BE EFFECTIVE WHERE SUCH IS PROHIBITED OR RESTRICTED BY LAW.

You may obtain a list of warranty service stations in your area directly from our service department listed below.

Simply take or ship your Microphone prepaid to our service department or service station. Be sure to include your sales slip as proof of purchase date. (We will not repair transit damage under the no-charge terms.)

## PHILIPS AUDIO VIDEO SYSTEMS CORP. AUDIO DIVISION



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Product improvements and other design modifications are subject to change without notice.